IN THE CLAIMS:

Claims 1-24 Cancelled

Please enter the following new claims:

25. A method of making a fluoride crystalline optical lithography lens element blank, said method including:

forming a fluoride crystalline melt,

crystallizing said melt into a fluoride crystalline member with a large dimension $\geq$ 200 mm,

annealing said fluoride crystalline member, and

qualifying the resulting member for use as an optical lithography lens element by a method selected from the group consisting of:

(a) measuring the absorption spectrum of the member from 200-220 nm for a 205 nm lead adsorption peak, and

(b) detecting radiation diffracted by the crystalline member.

26. The method according to claim 25, wherein measuring an absorption spectrum of the member from 200 to 220 nm for a 205 nm lead absorption peak further includes exciting the member with a 203 nm excitation radiation and measuring a luminescence spectrum produced by exciting the member to provide a qualified fluoride crystalline optical lithography lens element blank with a 157 nm internal absorption coefficient less than .0022/cm and a 193 nm internal absorption coefficient less than .00043/cm, a 205 nm lead absorption $< .23\ cm^{-1}$ local extinction, a 306 nm cerium absorption $< .7x10^{-3}\ cm^{-1}$ local extinction, an average birefringence less than 2 nm/cm with a maximum birefringence less than 5 nm/cm, and an optical homogeneity less than 2 ppm with a surface subgrain disorientation boundary angle ≤ 2 minutes.

27. The method as claimed in claim 26 wherein measuring includes analyzing said fluoride crystalline member for an oxygen absorption peak within the wavelength range of 140 to 150 nm.

28. The method as claimed in claim 26 wherein forming a fluoride crystalline melt includes melting a high purity calcium fluoride raw material having by weight impurity levels of ≤ 1 ppm Li, ≤ 3.3 ppm Na, ≤ 3.8 ppm K, ≤ .5 ppm Mg, ≤ 19 ppm Sr, ≤ .5 ppm Ba, < .2 ppm Sc, < .2 ppm Y, < .2 ppm La, ≤ .2 ppm Gd, < .2 ppm Yb, < .2 ppm Ti, < .2 ppm Cr, ≤ 4.2 ppm Mn, ≤ .4 ppm Fe, ≤ .2 ppm Co, < .2 ppm Ni, ≤ .3 ppm Cu, < 200 ppm O.

29. The method as claimed in claim 26 wherein forming a fluoride crystalline melt includes providing at least one deoxygenated densified solid fluoride crystalline disk having a diameter ≥ 200 mm and melting the at least one deoxygenated densified solid fluoride crystalline ≥200 mm diameter disk.

30. The method as claimed in claim 26 wherein measuring said fluoride crystalline member includes exposing said fluoride crystalline member to a radiation source and detecting radiation diffracted by the fluoride crystalline member.

31. The method according to claim 25, wherein detecting radiation diffracted by the crystalline member includes

exposing said fluoride crystalline member to a radiation source and detecting radiation diffracted by the fluoride crystalline member to provide a qualified fluoride crystalline optical lithography lens element blank with a 157 nm internal absorption coefficient less than .0022/cm and a 193 nm internal absorption coefficient less than .00043/cm, a 205 nm lead absorption < .23 cm^{-1} local extinction, a 306 nm cerium absorption < $.7x10^{-3}$ cm^{-1} local extinction, an average birefringence less than 2 nm/cm with a maximum birefringence less than 5 nm/cm, and an optical homogeneity less than 2 ppm with a surface subgrain disorientation boundary angle ≤ 2 minutes.

32. The method as claimed in claim 31 including analyzing said fluoride crystalline member for an oxygen absorption peak within the wavelength range of 140 to 150 nm.

33. The method as claimed in claim 31 wherein forming a fluoride crystalline melt includes melting a high purity calcium fluoride raw material having by weight impurity levels

of ≤ 1 ppm Li, ≤ 3.3 ppm Na, ≤ 3.8 ppm K, ≤ .5 ppm Mg, ≤ 19 ppm Sr, ≤ .5 ppm Ba, < .2 ppm Sc, < .2 ppm Y, < .2 ppm La, ≤ .2 ppm Gd, < .2 ppm Yb, < .2 ppm Ti, < .2 ppm Cr, ≤ 4.2 ppm Mn, ≤ .4 ppm Fe, ≤ .2 ppm Co, < .2 ppm Ni, ≤ .3 ppm Cu, < 200 ppm O.

34. The method as claimed in claim 31 wherein forming a fluoride crystalline melt includes providing at least one deoxygenated densified solid fluoride crystalline disk having a diameter ≥ 200 mm and melting the at least one deoxygenated densified solid fluoride crystalline ≥200 mm diameter disk.

35. The method as claimed in claim 31 including measuring an absorption spectrum of the member from 200 to 220 nm for a 205 nm lead absorption peak and exciting the member with a 203 nm excitation radiation and measuring a luminescence spectrum produced by exciting the member.